scribed by CARDAN on page 294 of his *De Subtilitate*, Nuremberg, 1550. It is also discussed by John Wallis in the Latin edition of his *Algebra*, 1693 (*Opera*, Vol. 2, pp. 472–478). The toy "consists of a number of rings hung upon a bar in such a manner that the ring at one end (say A) can be taken off or put on the bar at pleasure; but any other ring can be taken off or put on only when the one next to it towards A is on, and all the rest towards A are off the bar. The order of the rings cannot be changed." A pretty full discussion of the number of operations required to remove the rings from the bar (a problem which Cardan and Wallis failed to solve) has been given in W. W. R. BALL, *Mathematical Recreations and Essays*, 5th ed., London, Macmillan, 1911, pp. 230–234. Practically all that is in Ball's sketch, and considerable more, is given in E. LUCAS, *Récréations Mathématiques*, Paris, Gauthier-Villars, tome 1, 2e éd., 1891, pp. 161–186. The discussion of the number of operations by means of the binary scale is due to [L. GROS], *Théorie du Baguenodier*, par un clerc de notaire lyonnais, Lyon, 1872.

NOTES AND NEWS.

Professor E. W. BROWN, of Yale University, was elected a member of the Council of the American Philosophical Society at the January meeting.

The Paris Academy of Science during the year 1917 awarded seventy-seven prizes for especial achievements in science, eight of which were granted to mathematicians.

The Royal Society held its regular meeting on December 6, 1917, under the presidency of Sir J. J. THOMPSON. The only mathematical papers presented were "The series of Legendre," by W. H. YOUNG, and "The Zeros of Bessel functions," by G. N. WATSON. The London Mathematical Society held its monthly meeting on the same date, with vice-president H. HILTON presiding. The following papers were presented: "A new method of describing three-bar curves," by R. L. HIPPISLEY; "Proof of the primality of $N = (10^{19} - 1)/9$," by O. HOPPE; "New Tauberian theorems," by HARDY and LITTLEWOOD; "The curves which lie on the quartic surface in space of four dimensions," by C. V. H. RAO; "The connection between Legendre series and Fourier series," and "Series of Bessel functions," by W. H. YOUNG.

The third volume of the *Proceedings* of the National Academy of Sciences of the United States of America has been completed. The membership of the Academy now numbers one hundred fifty-eight, distributed somewhat irregularly over the United States, and representing the fields of mathematical, physical and biological sciences. Twelve members of the Academy are now, or have been, professors of mathematics. The table of contents of papers presented shows thirteen titles belonging to the field of mathematics, only two of which were credited to members of the Academy. The roster also shows twenty-six foreign associate members, four of whom are noted mathematicians, two belonging to the central, and two to the allied powers.

The Department of Superintendence of the National Educational Association met in Atlantic City on February 26–March 2, 1918. The program was rich in variety and extent, especially in respect to all phases of activity which in any way pertained to the world war. One feature of the program may well be commended to the mathematical fraternity, namely, the two sessions devoted to the teaching of English under the auspices of the National Council of Teachers of English. It has been suggested that our Association could do good service by providing speakers for the program of educational meetings both state and national, and it would seem that this Department of Superintendence offers a most favorable opportunity for propaganda of this kind.

The series of articles on "Valid aims and purpose for the study of mathematics in secondary schools" which is now running in *School Science and Mathematics* is commended to the attention of teachers of mathematics of all grades. These articles are the outcome of the work of a committee of the Mathematics Club of Chicago. Reprints of the whole series may be obtained from the chairman of the committee, Mr. ALFRED DAVIS, of the Francis W. Parker School, 330 Webster Avenue, Chicago.

Two articles bearing on the attacks upon mathematics are printed in *School Science and Mathematics* for January and February, 1918. They are by Professor J. W. A. YOUNG, of the University of Chicago, and relate to the psychological investigations in the disciplinary value of studies. The first article gives a summary of the work which has been done by psychologists along this line with a bibliography and definite references; the second gives some of the author's own theory on the subject, especially as related to mathematics. The psychological discussion of the value of studies is also presented in an interesting address by Professor E. C. MOORE before the Association of Mathematics Teachers of New England, and published in full in *School and Society*, October 27, 1917.

Ten men connected with the department of mathematics at the University of Illinois have resigned to enter the service of the government since the United States entered the war. The following five resignations have not been noted in the MONTHLY: Dr. L. M. KELLS, instructor in mathematics, has entered the Officers' Reserve Training Camp at Battle Creek, Michigan; Dr. J. R. MUSSELMAN, instructor in mathematics, has begun statistical work for the government at Washington; Assistant H. D. FRARY has been appointed director of the wood-testing plant for aëroplanes, at the University of Wisconsin; Assistant W. E. EDINGTON has accepted a position in the research division of the Signal Service and is located at Leavenworth, Kansas; and Assistant A. W. LARSEN has resigned to accept an instructorship in mathematics at the University of Kansas. Two of these vacancies have been filled by the appointment of Dr. J. E. McATEE, of William Jewell College, as instructor in mathematics, and the appointment of Mr. L. L. STEIMLEY, former instructor at the University of Kansas, as assistant in mathematics.

If departments of mathematics of our colleges and universities, offering summer courses in mathematics, will report to the editor of Notes and News an outline of these courses at once, we shall undertake to insert the announcements in the May issue of the MONTHLY. The outline should be prepared in the form used in the MONTHLY for April, 1917. Last year a fairly complete synopsis of summer work offered at the various institutions was secured by sending personal letters to each institution; no such letters will be sent this year, but it is hoped that all departments offering summer work will send promptly the synopsis for insertion in the MONTHLY.

The University of California will this year conduct two summer sessions, June 24 to August 3, one at the University of Berkeley, the other in Los Angeles. The department of mathematics will offer at Berkeley courses in elementary mathematics, advanced algebra, calculus, differential equations, theory of numbers, theory of functions, and integral equations. The instructors will be Professor D. N. LEHMER, Instructor BERNSTEIN and two assistants, and Dr. G. C. EVANS, of Rice Institute. At Los Angeles Professor C. A. NOBLE, and Professor V. SNYDER, of Cornell University, will offer courses in elementary algebra, plane analytic geometry, calculus, and higher geometry.

The April meeting of the Chicago Section of the American Mathematical Society will be held at the University of Chicago on Friday and Saturday, April 12, 13. Besides the usual research papers on both days, there will be a Symposium on Summable Series on Friday afternoon. Professor R. D. CARMICHAEL, of the University of Illinois, will present a paper on "General aspects of the theory of summable series," and Professor C. N. MOORE, of the University of Cincinnati, will treat "Applications of the theory of summability to developments in orthogonal functions."

At the coming summer meeting of the ASSOCIATION a session is to be arranged for papers to be presented by members. The Program Committee requests that members who are ready to discuss questions of interest in connection with collegiate instruction of mathematics send abstracts of their proposed papers to the chairman, Professor R. C. ARCHIBALD, Brown University, as soon as possible, and not later than May 15. Such papers should, in general, be of such length as may be delivered in fifteen to twenty minutes. It is hoped there will be a large response to this appeal, in the interests of a live and varied program.